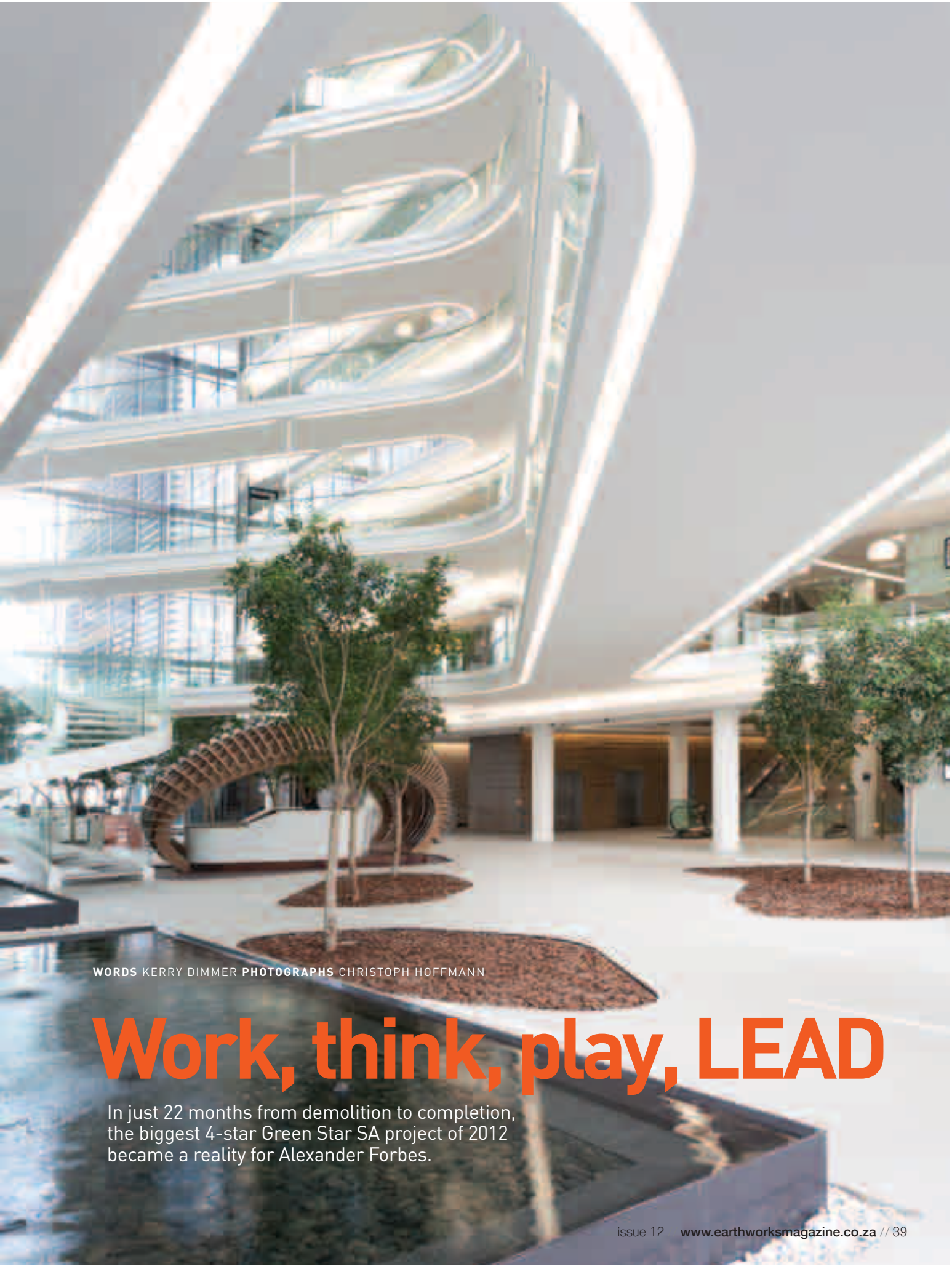
NUTSHELL

Location 115 West Street, Sandton
Area 100 000 m² (38 000 m² rentable)
Capacity 2 500 employees
Levels eight office floors
Parking 1 800 bays
Concrete used 43 000 m²
Cost R 950 million



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Work, think, play, LEAD

In just 22 months from demolition to completion, the biggest 4-star Green Star SA project of 2012 became a reality for Alexander Forbes.

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How do you reflect the values and the attitude of a company in brick and mortar? For financial and risk services giant Alexander Forbes, the building needed to project principles of transparency, progression, efficiency, sustainability, and trustworthiness.

"More importantly, however," says CEO Edward Kieswetter, "was our key objective to ensure the health and wellbeing of our employees, whom we consider to be the company's greatest asset".

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For Kieswetter and the rest of the management team it was crucial that in the same way Alexander Forbes impacts positively on the lives of the number of people it serves, the building had to incorporate a culture of open accessibility and staff comfort - something that was previously impossible given that its headquarters were spread over two buildings in Sandton.

With the company wanting to remain in the precinct and with a lease on its then existing premises expiring, Zenprop Property Holdings needed to react quickly in providing Alexander Forbes with a site that not only had stature in accordance with the company image, but enough space for a building that would house up to 2 500 employees. It also needed to cater for green technology and create an inspiring working experience for staff.

The site chosen, 115 West Street, on the corner of Rivonia Road, West Street and Katherine Street, and conveniently positioned opposite the Gautrain Sandton hub - has birthed a flagship development for Zenprop. The whole project took an incredible 22 months from demolition to occupation.

"R950-million is a significant investment and largely determined our total non-compromise

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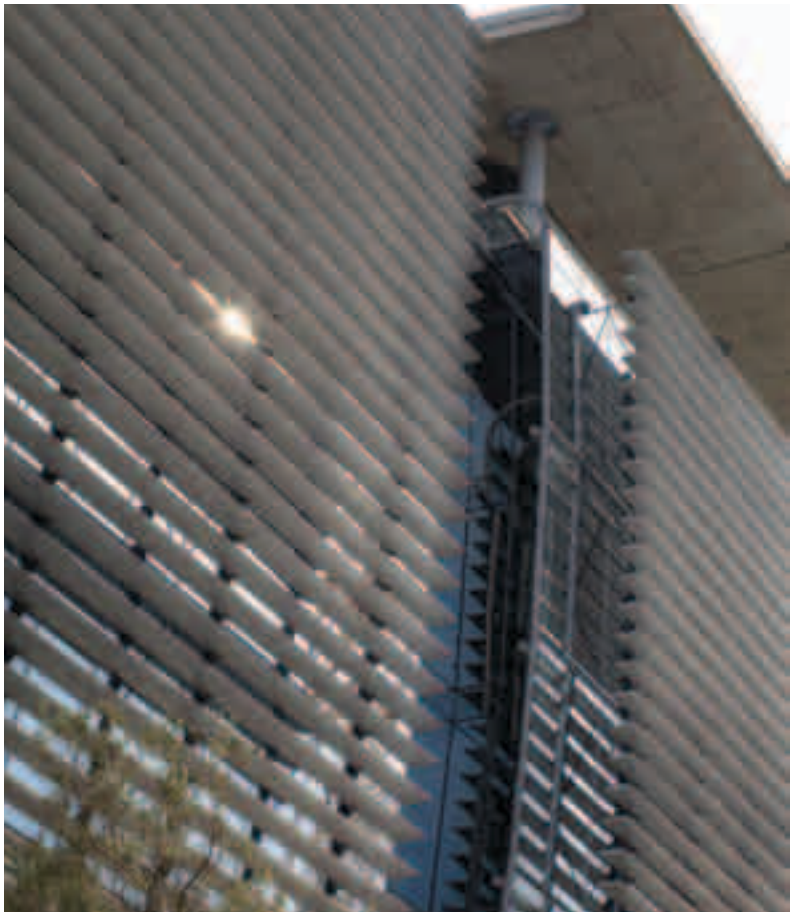

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attitude towards bespoke delivery and excellence," explains Stuart Gibbs, development director at Zenprop. "We hand-picked not just contractors, but the individual consultants and applied practices, which translated into a ground-breaking icon for Zenprop, Sandton and Alexander Forbes, with aspects that are not just striking, but also environmentally dynamic."

Accredited by the GBCSA with a 4-star Green Star SA Office v1 Design rating on opening day in October 2012, and registered for an As-built certification, it is the largest - at 38 000 m^2 rentable and 100 000 m^2 total - and most complex green building ever produced by Paragon Architects in consultation with PJCarew Consulting, a specialist in evaluating and designing strategies for the improved environmental performance of buildings.

It is not the first time that the liaison between Paragon Architects and PJCarew resulted in Green Star SA ratings in Sandton. Last year, they achieved their first with the Eastgate 20 retrofit. Similarly, at 115 West, the final build with eight office floors and six underground parking levels is "practically near-perfect to the blueprints, and does," says Kieswetter, "meet all expectations."

When describing the building, Hugh Fraser of Paragon Architects talks about columns and scallops, the movement of light and shading, floating, and organic shapes. "But make no mistake," he says, "commercial architectural work can be rather unromantic in practice, especially when working to such a tight building schedule."

Paragon Architects has a reputation for being able to pull off huge planning projects of this nature, although 115 West Street was exceptional in that it required a dedicated 7-days-a-week architectural team over the project's lifespan. "We take a three-legged approach between the architect, developer and tenant, where agreement must be reached right at the start about how to factor in the cost implications of achieving green goals and still remaining true to the brief."

At 115 West Street, the sense of transparency has been achieved with the inclusion of 22 000 m^2 of glazing which allows natural daylight to fulfill 58% of lighting needs and provides 64% of office areas with views.

Eight glazing formats were used throughout, including over the 12 skylight cones – five cones above each atrium and two above the escalators in the central lobby.

"At 8.4 m in diameter, the skylight forms flow

01. The main entrance

02. The S-shaped scalloping on the east and west facades

03. A closer view of the building's concrete, glass and wood facade

01

onto the outside of the off-shutter concrete roof," explains Fraser. "The varying size and shape of the panels were generated through Revit to maximise performance and required two prototypes that were manufactured off-site from M1, a high grade gypsum material reinforced with glass-fibre for strength. The thickness varies from 10 to 50 mm at the ribs and needed to be cast off from a master mould in eight pieces to facilitate transportation before being re-strung in the atrium space and tied back to the roof structure."

Achieving the balance between the right amounts of light versus heat gain, the glass facade on the ground and first floor meeting pods, sloping inwardly at an angle of 67.37 degrees, have been fitted with integrated motorised blinds, which, says Fraser, have become a design feature. "These internal rectilinear blinds are operated manually by remote control and are integrated into the BMS. Externally the sun shading blinds are made from a Ferrari fabric controlled by a sun and wind sensor to ensure shading without compromising safety and structure."

Two other features stand out aesthetically, one of which is the aforementioned off-shutter concrete columns in the atrium. At 8.5 m high, the raking columns – one with a Y-shaped branch to support a cantilevered walkway, the other to support the building structure - were moulded in a single cast and again required the use of Revit to ensure accurate measurement and sculpture.

The second feature, and one of the most talked about at 115 West, is the concrete S-shaped scalloping effect on the west and east facades, created, says Fraser, to age and oxidise naturally over time. These were texturised by a covering of German-imported pine, clad in Rheinzink. Aside from having environmental properties such as its recyclability and low energy consumption during manufacture, Rheinzink is an extremely flexible material allowing for the creation of shapes and forms that would be difficult, if not impossible, to achieve with other products.

The enormity of the vertical aspects of the building demanded the use of self-compacting concrete and specially designed and manufactured high-tolerance box-cuts and formwork. PERI VARio GT 24-girder wall formwork was designed in 10 m

01. The foyer

02. Breakaway spaces

03.

01.

long units with special radius whalers to ensure quality and tolerance, while still reducing costs.

In total, 43 000 m^3 of AfriSam readymix concrete was poured. Two types were used: one mixed with Penetron, a waterproofing additive, was used for the lift pit, basement walls and roof slabs. The second type, one that is fast becoming known as the "architect's concrete", allows for a reduction in the clinker content by using cementitious extenders.

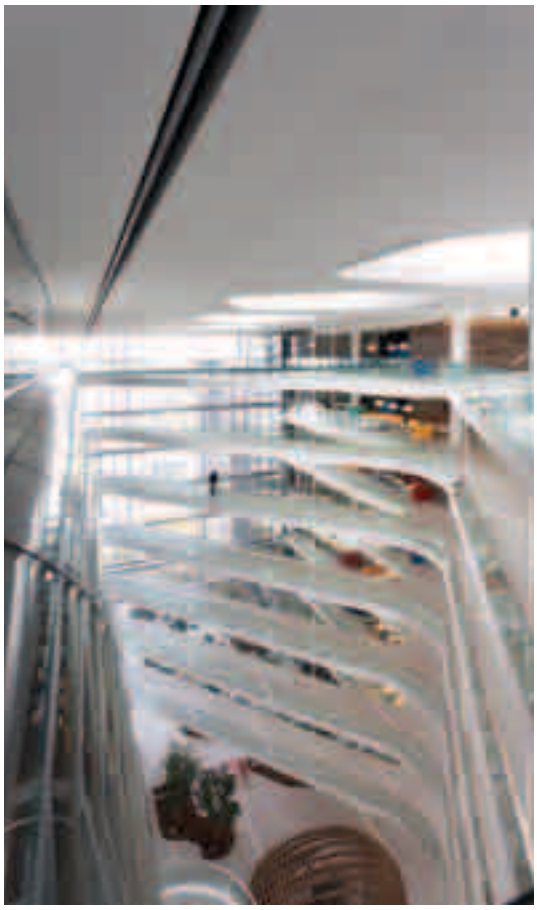
And it is the cement aspect that also proved the biggest challenge of the project. With parking space covering 100% of the footprint of the site, allowing six floors for 1 800 bays that also cater for hybrid, motorcycle, bicycle and other fuel-efficient vehicles, there was no room to work. Fraser elaborates: "This impacted enormously on the sequencing of construction, which was impeded. Concrete had to be mixed off site for the majority of the top structure but fortunately an adjacent property was available to house the batching plant for on site concrete mixing for the basement structure."

There is a sense internally of floating, created by steel bridges that connect the north and south blocks across the two atriums. "Wishbone in shape, and with a span of 22 m, the bridges have been suspended from the roof trusses by 60 mm diameter solid steel rods and self-leveling connecting bolts," says Fraser. "Technically this required the bridges to be hung from temporary steel columns until the roof structure had been placed."

The forethought that has gone into the comfort of employees is considerable and largely directed by PJCarew Consulting, who is experienced in achieving a balance between green technologies, lifestyle needs and allied cost savings.

The building houses a crèche, restaurant, gym, shower facilities, coffee shop and convenience store. More significant, however, is the peppering of breakaway or pause rooms, both informal and formal, which Kieswetter describes as people energy centres for work, think and play.

The use of escalators rather than the high-speed lifts is encouraged to ensure increased interaction between staff, although this meant sacrificing a third of a Green Star SA point. However, from an energy consumption aspect, reductions will be realised



02.

01. Black tiles line the ponds in the foyer

02. The bridges that connect the north and south blocks

Blinds provide protection from the sun's rays

through efficient space heating and cooling systems, the motion-sensitive fluorescent lighting fitments and the cleverly orientated facade shutters. PJCarew anticipates energy cost savings of 40% of what is usual in a building of this size.

Water recycling is achieved through harvesting grey water from a column of centrally-based ablution facilities and the gym. This water is treated with enzymes before being combined with filtered rainwater and the recycled water is pushed back into toilet and urinal flushing systems, which are also fitted with efficient operators for flushing.

The same grey water is also used in support of the xeriscaping of indigenous and drought tolerant plants that have been used across the ground floor, especially in the atriums that also boast a number of reflecting ponds clad in black 5 mm porcelain tiles that were specifically designed to achieve a precise level at the rim.

Projections are that Alexander Forbes will save 67% of potable water use compared with a similar Johannesburg office building.

Putting cost savings aside, the Alexander Forbes building is stunning from every angle. It is likely that it will become one of those architectural achievements that define how a commercial property can blend into the urban fabric of society, and where the lines between business and pleasure become blurred. Whoever said that you shouldn't mix the two, has not seen 115 West Street - the exception to the rule.

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